

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 10 (Cancelled).

11. (New) The apparatus for determining and/or monitoring a physical or chemical, process parameter of a medium, comprising:

a sensor;

a first control/evaluation unit; and

a second control/evaluation unit; wherein each control/evaluation unit has multiple components, with at least one component of the first and second control/evaluation units being embodied redundantly and diversely.

12. (New) The apparatus as claimed in claim 10, further comprising:

a first microprocessor assigned to said first control/evaluation unit;

a second microprocessor assigned to said second control/evaluation unit,

wherein:

said two microprocessors are of different types.

13. (New) The apparatus as claimed in claim 10, further comprising:

a first microprocessor assigned to said first control/evaluation unit;

a second microprocessor assigned to said second control/evaluation unit,

wherein:

said two microprocessors come from different sources.

14. (New) The apparatus as claimed in claim 10, wherein:

software stored in said microprocessors comes from different manufacturers.

15. (New) The apparatus as claimed in claim 10, wherein:
the process parameter is one of: fill level, foam formation, flow rate, density, viscosity, pressure, conductivity, and chemical composition of the medium.

16. (New) The apparatus as claimed in claim 10, wherein:
said sensor is a sensor for determining and/or monitoring one of: the fill level of a medium in a container, and for determining the density of a medium in the container.

17. (New) The apparatus as claimed in claim 16, wherein:
said sensor comprises an oscillatable unit, and a sending/receiving unit;
said oscillatable unit is mounted according to one of: at the height of the predetermined fill level, and such that it is immersed in the medium to a defined depth;
and
said sending/receiving unit excites said oscillatable unit to oscillate at a predetermined excitation frequency, and receives the response oscillations of said oscillatable unit.

18. (New) The apparatus as claimed in claim 10, wherein:
said two control/evaluation units detect the reaching of the predetermined fill level as soon as a predetermined change in frequency occurs, or, said two control/evaluation units determine the density of the medium on the basis of the oscillation frequency of said oscillatable unit.

19. (New) The apparatus as claimed in claim 17, wherein:
said sending/receiving unit is a disc-shaped piezoelectric element, on whose side facing away from said oscillatable unit an electrode structure is provided, which has at least a sending/receiving electrode, a receiving/sending electrode, and a ground electrode.

20. (New) The apparatus as claimed in claim 19, wherein:
said sending/receiving electrode and said receiving/sending electrode are semi-circular, said ground electrode is bar-shaped, and said sending/receiving electrode

and said receiving/sending electrode are arranged mirror-symmetrically with respect to said bar-shaped, centrally-arranged, ground electrode.